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U.S. Department of the Interior • U.S. Geological Survey

**MINERAL INDUSTRY SURVEYS**

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**SILICON IN DECEMBER 1997**

In **December**, domestic shipments and overall production of silicon ferroalloys plus metal, excluding silvery pig iron, increased by about one-tenth compared with those in November, according to the U.S. Geological Survey. Shipments returned to about the same monthly quantity and daily rate as in most months of 1997. For overall production, monthly quantity and daily rate were the greatest of the year. The corresponding total for stocks increased another 8% to a new high for the year. These comparisons take into account revisions to the November data for miscellaneous silicon alloys, for which the monthly totals for net shipments and gross production should have been reported as about 6,700 and 8,400 tons, respectively.

As of December, the year's production of silicon metal exceeded that for all of 1996. The preliminary data for 1997

listed in this report indicate relatively small increases in overall shipments and production in comparison with quantities for 1996. Yearend stocks increased about one-sixth.

**November** trade data are included in this report. Trade data for December were unavailable at the time of publication and will be included in a subsequent report.

Published prices for silicon-based commodities are listed below (**Source: Platt's Metals Week (PMW)**). Ferrosilicon prices are based on the contained weight of silicon. All prices are posted in cents per pound. **Update:** In its issue of February 2, 1998, PMW gave 1997 average prices of 48.0 for 75% ferrosilicon and 81.4 for silicon metal.

**Dealer Import Prices**

	<u>50% Ferrosilicon</u>	<u>75% Ferrosilicon</u>	<u>Silicon Metal</u>
<b>December 5</b>	<b>51.0-54.0</b>	<b>44.0-47.2</b>	<b>68.0-76.0</b>
<b>December 12</b>	"	"	"
<b>December 19</b>	"	<b>44.0-47.2</b>	"
<b>December 26</b>	"	"	<b>68.0-76.0</b>

TABLE 1  
U.S. PRODUCTION, SHIPMENTS, AND PRODUCER STOCKS OF SILICON ALLOYS AND METAL 1/ 2/

(Metric tons)

Material	Gross production 3/		Net shipments		Stocks, December 1997
	December 1997	Year to date	December 1997	Year to date	
Silvery pig iron:					
Less than 25% silicon	W	W	W	W	W
Ferrosilicon:					
25%-55% silicon	16,800	175,000	9,880	109,000	23,200
56%-95% silicon	11,900	147,000	11,300	146,000	21,500
Silicon metal:					
Excludes semiconductor grades	17,500	187,000	15,600	180,000	10,600
Miscellaneous silicon alloys:					
Exclusive of silicomanganese	9,450	106,000	7,560	91,800	12,600

W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits.

2/ Includes U.S. Geological Survey estimates.

3/ Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2  
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 1997 1/ 2/

(Metric tons)

Country	Gross weight	Contained weight	Value	Year to date		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Australia	--	--	--	75	48	\$132,000
Brazil	--	--	--	58	35	75,800
Canada	781	469	509,000	7,950	4,770	5,770,000
Germany	--	--	--	102	74	164,000
Japan	--	--	--	27	16	21,200
Korea, Republic of	162	97	141,000	1,580	948	1,350,000
Malaysia	--	--	--	34	25	59,200
Mexico	192	128	234,000	1,510	955	1,620,000
Taiwan	--	--	--	58	35	46,500
Venezuela	--	--	--	8	5	12,800
Other (2 countries)	--	--	--	14	8	18,400
Total	1,140	694	884,000	11,400	6,920	9,260,000
Other ferrosilicon:						
Australia	200	100	197,000	1,690	845	1,630,000
Canada	594	297	448,000	8,600	4,300	6,170,000
Hong Kong	120	60	94,400	363	181	287,000
India	80	40	363,000	836	418	1,300,000
Japan	1,060	530	844,000	8,510	4,260	6,860,000
Korea, Republic of	134	67	106,000	999	499	1,620,000
Mexico	147	73	144,000	2,630	1,320	2,360,000
Singapore	--	--	--	447	224	363,000
Taiwan	61	31	48,600	725	363	663,000
United Kingdom	497	248	374,000	10,100	5,060	6,850,000
Other (15 countries)	109	55	106,000	1,820	906	2,220,000
Total	3,000	1,500	2,720,000	36,700	18,400	30,300,000
Total ferrosilicon	4,140	2,200	3,610,000	48,100	25,300	39,600,000

See footnotes at end of table.

TABLE 2--Continued  
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 1997 1/ 2/

(Metric tons)

Country	Gross weight	Contained weight	Value	Year to date		
				Gross weight	Contained weight	Value
Metal:						
More than 99.99 % silicon:						
China	14	14	555,000	60	60	2,720,000
Czech Republic	6	6	286,000	44	44	2,370,000
Denmark	1	1	90,900	44	44	3,400,000
Germany	6	6	425,000	80	80	5,000,000
Japan	305	305	17,100,000	2,220	2,220	129,000,000
Korea, Republic of	56	56	2,640,000	662	662	28,800,000
Malaysia	12	12	3,100,000	142	142	38,300,000
Mexico	4	4	134,000	34	34	1,290,000
Netherlands	--	--	--	41	41	1,280,000
Taiwan	8	8	234,000	153	153	4,650,000
Other (49 countries)	25	25	1,970,000	166	166	12,800,000
Total	437	437	26,600,000	3,650	3,650	230,000,000
99.00% - 99.99% silicon:						
Brazil	2	2	3,470	24	23	53,900
Germany	--	--	--	30	30	60,000
Ghana	--	--	--	116	115	228,000
Ireland	--	--	--	12	12	34,600
Japan	18	18	22,700	105	104	142,000
Korea, Republic of	--	--	--	239	237	455,000
Malaysia	--	--	--	833	824	1,620,000
Mexico	--	--	--	160	159	354,000
Singapore	3	3	3,570	11	10	15,000
United Kingdom	--	--	--	17	17	23,500
Other (7 countries)	5	5	6,610	22	22	37,100
Total	29	28	36,300	1,570	1,550	3,020,000
Other silicon:						
Belgium	--	--	--	91	89	128,000
Canada	268	260	266,000	3,150	3,060	3,060,000
China	77	74	101,000	396	385	632,000
Germany	--	--	--	670	651	1,250,000
Japan	240	233	686,000	1,330	1,290	4,780,000
Korea, Republic of	7	7	25,000	117	113	313,000
Mexico	163	158	217,000	7,820	7,600	10,800,000
Taiwan	77	75	105,000	1,270	1,230	1,810,000
Thailand	--	--	--	215	209	284,000
United Kingdom	11	11	18,500	152	148	218,000
Other (24 countries)	70	68	102,000	544	528	1,180,000
Total	913	886	1,520,000	15,800	15,300	24,500,000
Total silicon metal	1,380	1,350	28,100,000	21,000	20,500	257,000,000

1/ Presentation of monthly data is based on the year-to-date quantities (gross weight) of the top ten countries.

2/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF FERROSILICON AND SILICON METAL IN NOVEMBER 1997 1/ 2/

(Metric tons)

Country	Gross weight	Contained weight	Value	Year to date 3/		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55% - 80% silicon, over 3% Ca:						
Argentina	--	--	--	737	541	\$722,000
Brazil	--	--	--	100	75	90,000
France	--	--	--	225	148	328,000
Germany	--	--	--	4	3	8,650
Norway	724	541	\$544,000	724	541	544,000
United Kingdom	--	--	--	74	55	377,000
Total	724	541	544,000	1,860	1,360	2,070,000
55% - 80% silicon, Other:						
Argentina	--	--	--	5,000	3,740	3,820,000
Brazil	--	--	--	5,240	3,930	3,770,000
Canada	--	--	--	2,750	2,080	2,380,000
Egypt	--	--	--	5,960	4,280	4,210,000
Iceland	5,170	3,930	5,050,000	25,300	19,200	21,700,000
India	794	611	512,000	5,340	4,060	3,660,000
Macedonia	978	733	659,000	3,090	2,340	2,120,000
Norway	5,600	4,200	4,060,000	69,600	52,500	53,400,000
Poland	--	--	--	5,910	4,440	3,980,000
South Africa	4,460	3,380	2,910,000	13,300	10,200	9,460,000
Other ( 10 countries)	92	69	377,000	3,050	2,250	4,800,000
Total	17,100	12,900	13,600,000	145,000	109,000	113,000,000
80% - 90% silicon:						
Argentina	--	--	--	495	403	458,000
More than 90% silicon:						
Brazil	--	--	--	3	3	5,090
Canada	--	--	--	270	265	440,000
France	--	--	--	(4/)	(4/)	1,650
Total	--	--	--	273	268	447,000
Magnesium ferrosilicon:						
Argentina	40	19	44,000	300	151	330,000
Bosnia-Herzegovina	--	--	--	40	19	37,000
Brazil	918	418	850,000	8,150	3,780	7,820,000
Canada	--	--	--	271	130	328,000
China	40	19	39,000	443	213	373,000
Germany	--	--	--	38	21	176,000
Japan	16	8	34,000	111	51	239,000
Norway	361	159	417,000	4,800	2,510	5,310,000
Total	1,380	623	1,380,000	14,100	6,880	14,600,000
Other ferrosilicon:						
Brazil	--	--	--	1	1	1,970
Canada	681	160	452,000	9,320	2,810	7,130,000
China	54	28	23,200	54	28	23,200
France	70	27	171,000	98	41	248,000
Norway	243	112	259,000	4,710	2,110	1,710,000
Poland	--	--	--	1,680	802	823,000
South Africa	--	--	--	80	12	76,800
United Kingdom	--	--	--	(4/)	(4/)	5,060
Total	1,050	327	906,000	15,900	5,800	10,000,000
Total ferrosilicon	20,200	14,400	16,400,000	177,000	124,000	141,000,000

See footnotes at end of table.

TABLE 3--Continued  
U.S. IMPORTS FOR CONSUMPTION OF FERROSILICON AND SILICON METAL IN NOVEMBER 1997 1/ 2/

(Metric tons)

Country	Gross weight	Contained weight	Value	Year to date 3/		
				Gross weight	Contained weight	Value
Metal:						
More than 99.99% silicon:						
Australia	--	--	--	80	80	\$144,000
Canada	--	--	--	86	86	214,000
China	(4/)	(4/)	\$8,800	47	47	2,600,000
Germany	24	24	2,220,000	454	454	43,100,000
Italy	36	36	2,210,000	326	326	18,000,000
Japan	47	47	1,610,000	325	325	14,200,000
Korea, Republic of	8	8	447,000	149	149	4,450,000
Taiwan	23	23	123,000	47	47	638,000
Ukraine	1	1	132,000	15	15	1,650,000
United Kingdom	3	3	145,000	19	19	1,150,000
Other (15 countries)	3	3	194,000	20	20	1,940,000
Total	145	145	7,090,000	1,570	1,570	88,100,000
99.00% - 99.99% silicon:						
Australia	607	602	1,050,000	4,100	4,000	6,920,000
Brazil	1,040	1,030	1,620,000	6,200	6,150	10,200,000
Canada	1,190	1,180	2,030,000	15,600	15,600	25,200,000
China	--	--	--	242	240	277,000
France	776	771	1,240,000	5,760	5,490	9,340,000
India	399	396	577,000	3,860	3,830	5,750,000
Norway	218	216	431,000	5,670	5,590	10,700,000
Russia	270	269	462,000	383	381	612,000
South Africa	1,080	1,070	1,830,000	10,700	10,200	18,100,000
Spain	--	--	--	800	792	1,260,000
Other (6 countries)	1	1	15,600	288	286	683,000
Total	5,580	5,540	9,250,000	53,700	52,600	89,000,000
Other silicon:						
Brazil	301	298	405,000	3,480	3,400	5,120,000
Canada	634	625	1,040,000	3,390	3,580	5,850,000
China	100	99	100,000	2,470	2,140	2,700,000
India	210	209	298,000	3,050	3,010	4,500,000
Macedonia	--	--	--	3,600	3,470	4,720,000
Norway	62	61	97,000	1,470	1,270	2,340,000
Russia	1,400	1,350	1,860,000	27,900	27,200	38,000,000
Saudi Arabia	--	--	--	1,900	1,840	2,440,000
South Africa	--	--	--	3,150	3,000	4,050,000
Ukraine	--	--	--	3,010	2,930	4,250,000
Other (14 countries)	102	97	246,000	2,950	4,690	4,840,000
Total	2,810	2,740	4,050,000	56,300	56,600	78,800,000
Total silicon metal	8,530	8,420	20,400,000	112,000	111,000	256,000,000

1/ Presentation of monthly data is based on the year-to-date quantities (gross weight) of the top ten countries.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ May include revisions to previous months' data.

4/ Less than 1/2 unit.

Source: Bureau of the Census.